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(54) MILK PRODUCT AND PROCESS

(71) We, NESTLE S.A., of La Tour de Peilz, Switzerland, a Swiss Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention is concerned with the manufacture of milk products.

The preparation of milk products having a paste-like consistency, for example that of a cream or cottage-type cheese, is generally effected by causing the casein in the milk to coagulate with the aid of rennet. This coagulation is accompanied by an expulsion of the whey and involves the operations of separating the curd from the whey, such as cutting of the curd, draining and pressing. Thus, in the cheesemaking industry the preparation of the curd has the disadvantage of producing large quantities of whey, utilization of which is limited and difficult.

Moreover, certain nutritive substances in milk, notably vitamins, trace elements such as zinc, copper, manganese and iron and proteins such as lactalbumin are partially lost in the whey. The result is a diminution in the nutritive value of curd by comparison with milk, all the more so because the nutritional properties of lactalbumin, generally expressed by the Protein Efficiency Ratio (PER), are superior to casein.

Furthermore, the manufacture of curds, which involves introducing foreign substances such as rennet into the milk, as well as the operations of separating the curd and the whey, cannot generally be performed under satisfactorily sterile conditions.

The present invention provides a process for preparing a homogeneous milk product of paste-like consistency which comprises completely freezing a condensed milk containing, by weight, at least 19% of non-fat milk solids and at least 3.5% of edible fatty solids, the total of these solids comprising at least 26% by weight of the condensed milk, and maintaining the milk at a temperature above the final temperature of freezing but below −3°C for at least 24 hours.

The expression "condensed milk" has a broad significance, and when used without further qualification denotes both sweetened and unsweetened condensed milk.

The expression "non-fat milk solids" is used in the specification to denote the non-fatty substances present in milk which, for example, represent on average about 9.2% by weight of cow's milk. The principal substances of this class are itemized below by way of illustration:

Proteins: casein, lactalbumin, lactoglobulins, immunoglobulins, enzymes
Sugars: mainly lactose
Mineral salts
Vitamins
Trace elements

The expression "edible fatty solids" is used herein to denote fatty substances of plant origin such as, for example, coconut oil, palm kernel oil, palm oil, peanut oil or soya bean oil, or animal fats such as, for instance, tallow or lard. In this latter category are also included the fatty solids contained in milk.

Furthermore, the expression "freezing the condensed milk" is used herein to denote that the milk is brought to a temperature below its final freezing temperature, for a

period that is sufficient to produce complete solidification of the milk. This final freezing temperature is a eutectic temperature that is a function of the chemical composition of the condensed milk used. It is of the order of −22°C for condensed milks having a chemical composition as described above, and is of the order of −28°C for sweetened condensed milk containing 6% by weight sucrose.

The milk product obtained by this process is in the form of a very malleable paste of homogeneous structure which shows no solid-liquid separation. When prepared starting from unsweetened condensed milk, its texture displays no sandy characteristics. When prepared starting from sweetened condensed milk, it gives on tasting a fleeting sensation of sandiness due to a proportion of crystallized lactose. This sensation is not at all detrimental in these products, which, because of the sweet taste, are essentially intended to be used as desserts or dessert garnishes.

This product, which contains not only milk casein but also other nutritive constituents of milk such as its other proteins, vitamins and trace elements, has excellent nutritional value.

The milk product obtained by the process in accordance with the invention, as it does not possess a free aqueous phase, has good biological stability and may be readily stored. Furthermore, although this is not essential, the product may be produced by starting from pasteurized milk or milk sterilized by a UHT (ultra-high temperature) or HTST (high-temperature short-time) procedure. Under these circumstances the process may be effected under sterile conditions and provides a product having particularly good biological stability.

In general, the product obtained by the process in accordance with the invention may be stored at ambient temperatures or under refrigeration, for example at a temperature of the order of 0 to 5°C, without it being essential to store it in the frozen state.

The progressive flocculation of certain milk proteins after freezing of milk followed by thawing has been observed and described as one of the major drawbacks of the technique of preserving milk by freezing. In effect, this flocculation, which is produced during the course of thawing, is generally accompanied by an expulsion of whey. The product obtained, which is heterogeneous, is unsuitable for use as such and it is necessary to effect the dispersion of the flocculate by heating and/or agitation in order to reconstitute the milk.

Experiments have shown that the freezing of a condensed milk having the composition specified above, following maintenance between the final freezing temperature and −3°C for at least 24 hours, causes an entirely unexpected change in structure, producing a very homogeneous material of pastelike consistency without expulsion of liquid. The structure of the product obtained, which is very stable, is retained during prolonged storage, even at ambient temperatures.

These experiments have also shown that this phenomenon, hereinafter called structure formation, is not affected by the kinetics of the cooling performed for the purpose of freezing the condensed milk. Thus the condensed milk may be cooled rapidly to the chosen temperature, which, naturally, is lower than the final freezing temperature of the condensed milk used, or may be cooled more slowly in continuous manner or in successive steps. The period of time for which the condensed milk is maintained at the chosen temperature should be sufficient to produce freezing of the milk to a solid state but may be prolonged as desired before reheating.

Moreover, during the course of the controlled reheating, the temperature of the condensed milk may either be kept constant at a value between the final temperature of freezing and −3°C during at least 24 hours, or it may allowed to rise continuously or in successive steps between these 2 temperatures during at least 24 hours.

The kinetics of the phenomenon of structure formation are a function of the temperature of the milk during the course of the controlled reheating of the milk as well as of its chemical composition, especially its solids content. In effect, the structure formation of the milk is developed more rapidly as the temperature of reheating and the solids content of the milk increase. It is thus appropriate to adjust the duration of this reheating, i.e. the time during which the milk is at a temperature between the final freezing temperature and −3°C, as a function of the actual temperature and its variations, if any, as well as of the solids content of the treated milk. At temperatures near the upper end of the specified range structure formation of the milk may be obtained with holding times at these temperatures which vary from 24 hours to several days, depending on the solids content of the condensed milk. Thus, for example, this structure formation is produced in 24 hours at −8°C in a condensed milk of 50% solids content and in 6 days at the same temperature in a milk containing only 28% solids. Moreover, in order to form a structure in a condensed milk sweetened with at least one carbohydrate, the period during which the milk needs to be kept at between the final freezing temperature and −3°C increases very rapidly with the proportion of carbohydrate used. For instance, it takes at least 9 days to form a structure

in a milk containing 3.4% sucrose and 31% solids, and at least 12 days in order to structure a milk containing 13% sucrose and 47% solids. At temperatures near the lower end of the specified range the phenomenon of structure formation develops more slowly and involves a much longer holding time at these temperatures, even for a condensed milk with a relatively high solids content. It is appropriate, for example, in order to produce satisfactory structure formation at −18°C of condensed milks containing respectively 27% and 38% solids to maintain this temperature for about 45 days. If the controlled reheating is effected by progressively raising the temperature to within the defined range, then it is appropriate to ensure that the temperature of the milk remains within this range for a sufficient period, for instance for 15—20 days for a milk containing 30—35% solids.

Experiments have further demonstrated that the phenomenon of structure formation can be produced in a condensed milk that has been sterilized by a UHT or HTST procedure, for instance by heating to 150°C for 3 seconds, or that has been pasteurized by heating to a temperature between 60° and 120°C, preferably between 75° and 95°C. Sterilizing or pasteurizing of the milk may be effected before concentration, or on the condensed milk, after incorporation of optional additives.

Flavouring substances and/or colourings may be incorporated in the milk before or after concentration, but before the freezing, to provide structured products possessing the desired colour and/or flavour which may be consumed as desserts. Thus, addition of cocoa powder to the condensed milk provides a structured product with a chocolate flavour and a colour similar to that of chocolate cream. The milk, optionally after concentration, may be lightly acidified with an edible acid such as, for instance, citric acid or lactic acid. Moreover, it is also possible to add to the milk, before or after concentration, one or more sweeteners used as sugar substitutes, for example a natural glycoside, a dipeptide, or saccharin.

The milk used as starting material, having the composition previously defined, that is containing, by weight at least 19% non-fat milk solids and at least 3.5% edible fatty solids, the total solids amounting to at least 26% by weight of the condensed milk, may be prepared by various procedures according to the nature of the raw materials used. These procedures, which are summarized below, are known to those skilled in the art, and it is unnecessary to describe them in detail.

It is possible, starting from a milk of given composition, for example a whole milk or milk skimmed to a greater or lesser degree, either to adjust the content of the fat and non-fat solids of this milk in order to obtain the desired levels after concentration, and then to condense the milk, for example by evaporation, or to concentrate first and then adjust the solids contents of the condensed milk to the desired values.

The adjustment of the content of non-fat milk solids, before or after concentration, may be made with a milk powder or with condensed milk.

The adjustment of the content of fatty solids may be effected either with milk-fat solids, namely with cream using the standardization technique, or with edible fats of vegetable or animal origin. In the latter case it is convenient to form an emulsion of these substances in the milk, optionally with addition of an emulsifying agent, and to homogenize the milk. Naturally, it is possible to effect this adjustment of the fat solids content of the milk by combining edible fats of different origins, for example milk-fat solids with edible fats of vegetable origin.

According to one preferred embodiment of the invention, an unsweetened milk having the following composition is prepared:

(a) content by weight of non-fat milk solids of at least 19%,
(b) content by weight of fatty solids of at least 3.5%,
(c) total content by weight of fatty solids + non-fat milk solids of at least 26%, preferably between 30 and 50%.

Alternatively, a sweetened condensed milk may also be structured by the process of the invention. In this case, the solids content is so adjusted that the amount by which the total milk solids content exceeds 26% is at least 1.4 times the content of added sugar.

The accompanying drawing represents, by way of example, a graph showing the relationship between the sugar content S (abscissa) and the milk solids content T_c (ordinate) in an average cow's milk. A straight line with a slope of about 1.6 defines two regions: the upper region, including the line itself, which corresponds to compositions providing the homogeneous milk product of paste-like consistency, and the lower region, corresponding to compositions which do not lead to structured products.

This line represents an average for spring/summer milk, and it may be subject to some displacement depending on the composition and nature of the milk. For example, it is moved slightly towards the right for an autumn milk.

The method of obtaining the sweetened condensed milk has no great effect on the structure formation; thus, the sugar may be added before or after concentration or the milk may be itself a reconstituted condensed

milk. The added sugar may be a carbohydrate such as, for example, sucrose, glucose or fructose, or a mixture of carbohydrates.

The condensed milk prepared in this way, either sweetened or unsweetened, possibly sterilized by a UHT or HTST process, or pasteurized, is then frozen, for instance at −40°C, and is then heated in such a way that its temperature remains at between the final temperature of freezing and −3°C for at least 24 hours, during which period the phenomenon of structure formation takes place.

During this period the temperture of the condensed milk may be held constant, preferably at between −6°C and −15°C, or it may be allowed to rise in continuous fashion or in successive steps between the final freezing temperature, which may be for example −22°C or −28°C depending on the composition of the milk, and −3°C. The temperature may be raised either by allowing the freezing area to warm up, or in accordance with a predetermined programme.

The product obtained may be then warmed to ambient temperature and consumed, or it may be stored.

When it is desired to keep the milk for long periods and still obtain the structure described herein, the milk may be stored either at a temperature below the final freezing temperature and not warmed until the end of storage, or at a temperature of between the final freezing temperature and −3°C after previous freezing.

It is particularly advantageous to precool the condensed milk before freezing to a temperature below ambient, preferably to between −4°C and +10°C. At these temperatures the product is still fluid enough to be pumped through heat exchangers and may be easily poured into containers. Thus the condensed milk may be pre-cooled either by continuous passage through a cooling device, for example, of the scraped-surface type, or statically as in a tank, prior to filling in containers such as cans, which are then hermetically sealed. The milk may then be frozen in the containers and subsequently heated in the controlled manner previously described. The resulting product has very good biological stability.

The invention is illustrated by the following examples, in which the concentrations and percentages are expressed on a weight basis.

EXAMPLE 1

A standardized milk containing 3.56% milk-fat solids and 8.80% non-fat milk solids, thus a total of 12.36% solids, is pasteurized at 75°C for one minute in a tubular pasteurizer.

The pasteurized milk is then cooled to 60°C using a tubular exchanger, and is then homogenized in a 2-stage Manton Gaulin homogenizer at respective pressures of 150 and 100 atm in the two stages.

The pasteurized and homogenized milk is concentrated by evaporation under reduced pressure to a total solids content of 38.1%. The composition of the condensed milk is the following:

Non-fat milk solids	27.1%
Milk-fat solids	11.0%

The milk is then cooled to 15°C and then to −3°C in a tubular scraped-surface heat exchanger and is filled into 170cc metal cans. The cans are then seamed and placed in a freezer at a temperature of −40°C. After storage for 16 hours at −40°C, during which time the milk freezes, the cans are transferred into a refrigerated chamber at −11°C and maintained at this temperature for 8 days in order to produce the structure formation in the milk.

The cans are then warmed to ambient temperature and opened. The product is of homogeneous, paste-like consistency and white colour with no liquid phase; it can be consumed in the same way as fresh cheese of the type generally called "petit suisse".

By comparison, an analogous treatment performed on a condensed milk having a composition not in accordance with the invention demonstrates the importance of the composition of the condensed milk. A standardized milk containing 8.22% non-fat milk solids and 9.84% milk-fat solids (total solids content 18.06%) is pasteurized as described at the beginning of the example. After cooling to 60°C and homogenizing as described at the beginning of the example, the milk is concentrated to a solids content of 35.8%. This condensed milk, which contains 16.3% of non-fat milk solids and 19.5% of milk-fat solids, is then pre-cooled, canned, frozen and warmed as described previously in this example. On opening the cans it is found that the product is in the form of a flocculated material with a supernatant liquid phase. The condensed milk used, the non-fat milk solids content of which (16.3%) is insufficient, has not undergone the previously described phenomenon of structure formation but merely a flocculation accompanied by expulsion of the whey.

EXAMPLE 2

A skimmed milk containing 8.95% non-fat milk solids, to which 3.8% coconut fat is added, is used as starting material. This is prepared by circulating the skimmed milk, previously heated to 60°C, in a tubular pasteurizer equiped with lateral injectors through which the molten coconut fat, heated to 55°C, is introduced into the milk with a

metering pump, and the emulsion is pasteurized at 75°C for 1 minute.

The pasteurized milk with added coconut fat is homogenized at 75°C in a 2-stage Manton Gaulin homogenizer, at respective homogenization pressures of 250 and 100 atm in the two stages. The homogenized milk is concentrated by evaporation under vacuum to a total solids content of 39%; it then has the following composition:

Non-fat milk solids	27.4%
Coconut fat	11.6%

This milk is then cooled progressively to −3°C, poured into metal cans and frozen at −40°C as described in Example 1. The cans are then progressively warmed in such a way that the temperature of their contents rises slowly from −22°C to −3°C over 20 days, during which time the structure formation of the condensed milk takes place. On opening the cans it is found that the product is a homogeneous paste with no liquid phase, similar to the product described in Example 1.

EXAMPLE 3

A standardized milk containing 3.56% milk-fat solids, 8.80% non-fat milk solids and to which 0.05% liquid vanilla flavouring and 0.002% yellow colouring have been added is pasteurised at 75°C for one minute.

This milk, subsequently treated as in Example 1, provides a vanilla-flavoured structured product, light yellow in colour, which may be eaten as a dessert.

EXAMPLE 4

A condensed milk of the following composition:

Non-fat milk solids	23.6%
Milk-fat solids	9.6%
Total solids content	33.2%

is prepared as described in Example 1.

A whole milk powder of the following composition is then added:

Non-fat milk solids	69%
Milk-fat solids	28%
Moisture	3%

The milk powder is added in the proportions of 5.05 kg of powder for 94.95 kg condensed milk giving a condensed milk having a total solids content of 36.4%. This milk is then precooled, filled into metal cans and frozen and warmed as described in Example 1. The resulting structured product has a past-like consistency analogous to that of the product of Example 1.

EXAMPLE 5

A standardized milk containing 3.55% milk-fat solids and 8.9% non-fat milk solids, that is a total solids content of 12.45%, is sterilized at 150°C for three seconds using the UHT procedure.

The sterilized milk, after cooling to 60°C and homogenizing in a 2-stage Manton Gaulin homogenizer (at respective homogenization pressures of 150 and 100 atm in the two stages) is then concentrated by evaporation under reduced pressure to a solids content of 50%. The condensed milk has the following composition:

Non-fat milk solids	35.75%
Milk-fat solids	14.25%

This milk is then cooled to 8°C and filled into metal cans of 170 cc capacity which are then sealed and placed in a freezer at a temperature of −35°C. After 20 hours' storage at −35°C the cans are warmed to −8°C and held at this temperature for 24 hours, during which time structure formation takes place in the milk.

The cans are then warmed to ambient temperature and opened. The resulting homogeneous milk product is of thicker consistency than the product prepared as described in Example 1.

EXAMPLE 6

A sterilized and homogenized milk having the composition of the milk described in Example 5 is prepared as in that Example. This milk is concentrated by evaporation under reduced pressure to yield a condensed milk having the following composition:

Non-fat milk solids	19.6%
Milk-fat solids	7.8%
Solids content	27.4%

This condensed milk is pre-cooled to −3°C, frozen in sealed metal cans at −40°C for 16 hours, then warmed to −18°C and held at this temperature for 50 days. After warming to ambient temperature it is found that a structured product has been obtained.

EXAMPLE 7

A standardized milk containing 3.60% milk-fat solids, 8.80% non-fat milk solids and 1.10% sucrose, giving a total solids content of 13.50%, is pasteurized at 75°C for one minute in a tubular pasteurizer.

The pasteurized milk is next cooled to 60°C in a tubular heat exchanger and is then processed in a 2-stage Manton Gaulin homogenizer using respective pressures of 150 and 100 atm in the two stages.

The pasteurized and homogenized milk is concentrated by evaporation under reduced pressure to a total solids content of 37%. The resulting sweetened condensed milk has the following composition:

Non-fat milk solids	24.1%
Milk-fat solids	9.9%
Sucrose	3.0%

The milk is cooled to 15°C, then to −3°C in a tubular scraped surface heat exchanger, and is filled into cans of 170 cc capacity. These cans are then sealed, placed in a freezer at −40°C where the product is frozen, and then maintained at −8°C for 10 days in order to allow structure formation to take place in the milk.

The resulting homogeneous milk product has a paste-like consistency, white colour and no liquid phase.

For comparison purposes, a standardized milk containing 8.8% non-fat milk solids, 3.6% milk-fat solids and 2.55% sucrose (total solids content = 14.95%) is pasteurized, cooled to 60°C and homogenized as described at the beginning of this Example, and then concentrated to a solids content of 41%. This condensed milk, which contains 24.1% non-fat milk solids, 9.9% milk-fat solids and 7.0% sucrose, is then precooled, canned, frozen and warmed as described in the present example. The resulting product is in the form of a flocculated material with a supernatant liquid phase, which demonstrates that a structured product is not obtained when the amount by which the total milk solids content exceeds 26% (34%—26%=8%) is less than 1.4 times the content of added sugar (7%) (cf drawing: the composition is below the line).

EXAMPLE 8

A standardized milk containing 3.0% milk-fat solids and 8.9% non-fat milk solids, (giving a milk solids total of 11.9%), and to which have been added 0.05% of liquid strawberry flavouring and 0.002% red colouring matter, is pasteurized at 75°C for one minute in a tubular pasteurizer.

The pasteurized milk is then cooled to 60°C using a tubular exchanger and is homogenized in two stages at pressures respectively of 150 and 100 atm.

The pasteurized and homogenized milk is then evaporated under reduced pressure to a total solids content of 56.8%. The composition of the condensed milk is:

Non-fat milk solids	42.5%
Milk-fat solids	14.3%

Sufficient sucrose syrup is then added to give a sweetened condensed milk with a total solids content of 62% and containing:

Non-fat milk solids	37.4%
Milk-fat solids	12.6%
Sucrose	12.0%

The sweetened condensed milk, treated as in the Example 7, provides a structured product of pale red colour and having a strawberry flavour. It has a thicker consistency than the product prepared in Example 7.

For comparison purposes, analogous treatment of a flavoured and sweetened condensed milk prepared as described above but containing 29.9% non-fat milk solids, 10.1% milk-fat solids and 12% sucrose yields a flocculated product with a liquid supernatant.

EXAMPLE 9

A standardized milk containing 2.0% milk-fat solids, 8.9% non-fat milk solids and 1.8% anhydrous glucose is pasteurized for one minute at 75°C.

The pasteurized milk, cooled to 60°C and homogenized in two stages (at respective pressures of 150 and 100 atm) is then concentrated by evaporation under reduced pressure to a solids content of 49%. The composition of the condensed milk is as follows:

Non-fat milk solids	34.3%
Milk-fat solids	7.7%
Glucose	7.0%

This milk is then cooled to 8°C and filled into 170 cc cans, which are next sealed and placed in a freezer at a temperature of −35°C. After storage at −35°C for 20 hours, the cans are warmed to −9°C and held at this temperature for 12 days, during which period the structure formation of the milk takes place.

The resulting homogeneous milk product has a paste-like consistency intermediate between the product prepared according to Example 7 and that produced according to Example 8.

For comparison purposes, analogous treatment of a sweetened condensed milk prepared as described above but containing 27.8% non-fat milk solids, 6.2% milk-fat solids and 10% glucose gives a flocculated product with a supernatant liquid phase.

EXAMPLE 10

A skimmed milk containing 9.0% non-fat milk solids, 1.7% sucrose and 4.0% coconut fat is used as starting material. It is prepared by circulating skimmed milk, previously heated to 60°C, in a tubular pasteurizer equipped with lateral injectors through which the coconut fat, previously molten and heated to 55°C, is introduced into the milk by a metering pump, and the emulsion is pasteurised for 1 minute at 75°C.

The emulsion is homogenised and concentrated by vacuum evaporation to a total solids content of 50.9%. It has the following composition:

Non-fat milk solids	31.2%
Coconut fat	13.8%
Sucrose	5.9%

This milk is then cooled progressively to −3°C, filled into cans and frozen at −40°C as described in Example 7. The cans are then warmed to −9.5°C and held at this temperature for 11 days in order to allow structure formation to take place in the milk. The product is a homogeneous paste exempt of a liquid phase and has a consistency very similar to that of the product prepared in Example 9.

EXAMPLE 11

A condensed milk containing 33.3% total solids is prepared as described in Example 7. Its composition is the following:

Non-fat milk solids	23.6%
Milk-fat solids	9.6%
Saccharin	0.1%

A whole milk powder of the following composition is then added:

Non-fat milk solids	69%
Milk-fat solids	28%
Moisture	3%

The whole milk powder is added in the proportions of 5.05 kg of powder for 94.95 kg of condensed milk, to give a condensed milk having a total solids content of 36.4%. This milk is then pre-cooled, canned, frozen and warmed as described in Example 1. The resulting structured product has a paste-like consistency very close to that of the product prepared according to Example 7.

WHAT WE CLAIM IS:—

1. A process for preparing a homogeneous milk product of paste-like consistency, which comprises completely freezing a condensed milk containing, by weight, at least 19% of non-fat milk solids and at least 3.5% of edible fatty solids the total of these solids representing at least 26% by weight of the condensed milk, and thereafter maintaining the milk at a temperature above the final temperature of freezing but below −3°C for at least 24 hours.

2. A process according to claim 1 in which the total of non-fat milk solids and edible fatty solids represents 30 to 50% by weight of the condensed milk.

3. A process according to claim 1 or claim 2 in which the fatty solids comprise milk fat, another edible animal fat or a vegetable fat.

4. A process according to any one of the preceding claims in which the condensed milk contains at least one of a flavouring substance and a colouring agent.

5. A process according to any one of the preceding claims in which the condensed milk contains an artificial sweetening agent.

6. A process according to any one of claims 1 to 4 in which the condensed milk contains an added sugar as sweetening agent, and the amount by which the total of the non-fat milk solids and edible fatty solids exceeds 26% by weight of the condensed milk is at least 1.4 times the amount of added sugar.

7. A process according to claim 6 in which the added sugar is sucrose or glucose.

8. A process according to any one of the preceding claims in which after freezing the condensed milk is maintained at a temperature between −15°C and −6°C for at least 24 hours.

9. A process according to any one of the preceding claims in which prior to freezing the condensed milk is cooled to a temperature between +10°C and −4°C.

10. A process according to claim 9 in which after cooling and prior to freezing the condensed milk is filled into containers and the containers are sealed.

11. A process for preparing a milk product according to claim 1 substantially as herein described with reference to any one of Examples 1 to 6.

12. A process for preparing a milk product according to claim 1 substantially as herein described with reference to Example 11.

13. A process for preparing a milk product according to claim 6 substantially as herein described with reference to any one of Examples 7 to 10.

14. The milk product obtained by a process according to any one of the preceding claims.

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1405512 COMPLETE SPECIFICATION

1 SHEET *This drawing is a reproduction of the Original on a reduced scale*